

REMARKS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1, 2, 4-12 and 15-23 are currently pending. Claims 1, 7-10, 15 and 17-22 have been amended; and Claim 23 has been added by the present amendment. The changes and additions to the claims are supported by the originally filed specification and do not add new matter.

In the outstanding Office Action, Claims 15, 18 and 19 were objected to as containing informalities; Claims 7-11, 17, 20 and 21 were rejected under 35 U.S.C. § 112, second paragraph; and Claims 1, 2, 4-12 and 15-22 were rejected under 35 U.S.C. § 103(a) as unpatentable over Vogel et al. (U.S. Patent No. 7,130,283; hereinafter “Vogel”) in view of Cable et al. (U.S. Patent No. 6,854,013; hereinafter “Cable”), Elwalid et al. (U.S. Patent No. 6,567,415; hereinafter “Elwalid”) and Benveniste (U.S. Patent Pub. No. 2002/0163933).

Regarding the objection to Claims 15, 18 and 19, Applicants respectfully submit that the objection has been overcome by the present amendment to those claims.

Regarding the rejection of Claims 7-11, 17, 20 and 21 under 35 U.S.C. § 112, Applicants have amended those claims to remove the references to “means.” Accordingly, Applicants respectfully submit that the rejection has been rendered moot.

Independent Claim 1 is directed to a method to allocate bandwidth to connections of a network including:

...allocating, at the central controller, a fixed amount of bandwidth to a QoS connection, the QoS connection requiring a certain quality of service (QOS), wherein an operator of said QoS connection is a requesting terminal which is a terminal of said ad-hoc network, and the fixed amount of bandwidth is independent from an actual needed amount of bandwidth;

freeing, at the central controller, a certain amount of the allocated fixed amount of bandwidth as freed bandwidth after receiving a resource request from the operator of said QoS

connection indicating the actual needed amount of bandwidth, wherein the actual needed amount of bandwidth does not exceed said fixed amount of bandwidth and said freed bandwidth is a difference between the allocated fixed amount of bandwidth and the actual needed amount of bandwidth;

Page 4 of the Office Action suggests that Vogel discloses allocating, at the central controller, an amount of bandwidth to a connection requiring a certain QoS at column 6, lines 4-18 and discloses that a certain amount of the allocated fixed amount of bandwidth is freed after receiving a resource request from the operator of the connection indicating the actual needed amount of bandwidth at column 6, lines 5-18 and/or column 6, line 61 to column 7, line 2 in rejecting the claimed steps of allocation and freeing.

Vogel is directed to a variable bandwidth allocation scheme that combines seven different methods including dedicated allocation for dedicated services, full allocation when loaded and load based de-allocation.¹ As specifically described at column 5, lines 44-48 and lines 55-60, for sessions requiring a dedicated bandwidth (VoIP, teleconferencing, etc.) a dedicated allocation is accomplished and the bandwidth committed is “fenced off,” ensuring that all guarantees to those sessions are met.² For the remaining connections, the user terminal can determine its need to go to its full bandwidth allocation by the amount of data in its input buffers.³ Based on the “full allocation when loaded” strategy, the user terminal can be in one of three allocation states: full return bandwidth, minimum return bandwidth, and no return bandwidth.⁴

However, these passages of Vogel include no description of a central controller that receives a resource request from an operator of a QoS connection indicating an actual needed amount of bandwidth.

¹ See column 3, lines 14-19, column 3, lines 27-35, and column 3, lines 59-67.

² See also column 4, lines 40-42.

³ See column 6, lines 6-8.

⁴ See column 6, lines 62-65.

In contrast, independent Claim 1 recite “freeing, at the central controller, a certain amount of the allocated fixed amount of bandwidth as freed bandwidth *after receiving a resource request from the operator of said QoS connection indicating the actual needed amount of bandwidth.*” Thus, Vogel does not disclose the claimed step of freeing.

Further, page 6 of the Office Action correctly acknowledges that Vogel fails to disclose that the connection is a QoS connection, that the amount of bandwidth is fixed and that the fixed amount of bandwidth is independent from an actual needed amount of bandwidth, as defined in Claim 1. In an attempt to cure this deficiency, the Office Action cites to column 2, lines 44-55, column 5, lines 31-32, and lines 60-65 of Cable.

Cable is directed to a method, by which server load can be distributed in a network including a plurality of clients and servers.⁵ In the system of Cable, the server controller is advised of the unused capacities of all the servers under its control.⁶ The aggregate unused capacity is communicated to the subscriber edge devices 3, and the subscriber edge devices transmit a response to the server controller 6 indicating how much bandwidth is required by each of the subscriber edge devices.⁷ Then, a negotiation takes place between the server controller 6 and the subscriber edge device 3 resulting in a reservation of the required network resources.⁸ When more than one server 7 is able to provide the amount of bandwidth required, the subscriber edge device 3 chooses a server 7.⁹ The transaction/reservation is implemented using a RSVP (Resource Reservation Protocol) as the QoS mechanism. In other words, according to Cable, bandwidth of the server (e.g. calculating capacity and other restricted resources) is managed using a QoS communication mechanism that may employ the RSVP.

⁵ See Claim 1 in combination with column 4, lines 8-10)

⁶ See column 4, lines 38-40.

⁷ See column 4, lines 38-44.

⁸ See column 5, lines 45-48.

⁹ See column 6, lines 1-3.

However, Cable does not disclose that the connection for which bandwidth is allocated is a QoS connection. Moreover, Cable fails to disclose that the amount of bandwidth that is allocated to a QoS connection is fixed and that the fixed amount of bandwidth is independent from an actual needed amount of bandwidth for connection.

In particular, the cited portions of Cable merely describe the functionality of the resource requester, the resource reserver and resource returner. The subscriber edge device includes a resource requester for sending a network request to a server controller, a resource reserver for reserving an amount of bandwidth (of a server resource) and a resource returner for obtaining the requested resource and for returning the requested resource to a client. In other words, the subscriber edge device includes various components for enabling the reservation and return of a requested resource to a client.

However, the cited portions are completely silent about an amount of bandwidth of a network connection being fixed and a fixed amount of bandwidth being independent from an actual needed amount of bandwidth. Rather, as is described in column 5, lines 39-44 and 60-55, each server advertises its available bandwidth to its associated server controller, and the subscriber edge device calculates how much bandwidth it requires after checking the requests of the clients.

In Cable, a negotiation takes place between the server controller and the subscriber edge device.¹⁰ This negotiation is performed using RSVP messages. The QoS connection is used for exchanging messages between the server controller and the subscriber edge device. The bandwidth that is distributed in the system of Cable is not distributed for a QoS connection but for the resources offered by the server.

¹⁰ See column 5, lines 45-47.

Thus, Cable fails to disclose that the connection is a QoS connection, that the amount of bandwidth is fixed and that the fixed amount of bandwidth is independent from an actual needed amount of bandwidth, and fails to cure the above noted deficiencies of Vogel.

Further, Applicants respectfully submit that there is no motivation to combine the teachings of Vogel and Cable. As is specifically pointed out by Vogel, the bandwidth that is allocated to QoS connections is “fenced off,” ensuring that all guarantees to those sessions are met.¹¹ As is further stressed at column 5, lines 44-48, for QoS connections, the system has committed to a rate via RSVP, and it cannot attempt to optimize the use of return bandwidth. In other words, the different bandwidth allocation methods referred to by Vogel are only applicable to non-QoS services.

Thus, one of ordinary skill in the art would recognize that implementing an allocation method to a QoS service would conflict with the teachings of Vogel and, consequently would not apply such a teaching to Vogel. Hence, even if Cable were to teach features relating to the optimization for QoS connections, it would not have been obvious to apply such a teaching into the method of Vogel.

In addition, Applicants respectfully submit that Elwalid and Benveniste fail to cure the above-noted deficients of Vogel and Cable.

Therefore, no proper combination of the cited references discloses or renders obvious “allocating, at the central controller, a fixed amount of bandwidth to a QoS connection, the QoS connection requiring a certain quality of service (QOS), . . . and the fixed amount of bandwidth is independent from an actual needed amount of bandwidth,” and “freeing, at the central controller, a certain amount of the allocated fixed amount of bandwidth as freed bandwidth after receiving a resource request from the operator of said QoS connection indicating the actual needed amount of bandwidth,” as recited in Claim 1.

¹¹ See column 4, lines 40-42, column 3, lines 14-18.

Although varying in scope and statutory class, independent Claims 4, 7, 10, and 22 recite similar features to those discussed above with respect to Claim 1. The above discussion is also applicable to those claims.

Accordingly, Applicants respectfully submit that a *prima facie* case of obviousness has not been established and request that the rejection of independent Claims 1, 4, 7, 10 and 22 (and all claims depending thereon) under 35 U.S.C. § 103 be withdrawn.

Consequently, in view of the present amendment, and in light of the above discussion, the pending claims as presented herewith are believed to be in condition for formal allowance, and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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